



Reflections on the “Doughboy” Experience of Chemical Warfare

By Colonel Jeffrey P. Lee

The pristine American military cemeteries in the Meuse-Argonne and in St. Mihiel, France, and verdant wheat fields surrounding them do not adequately reflect the tragedy or horrors of “The Great War” some nine decades ago—especially when it comes to chemical warfare. Nor do these battlefields even hint at the difficult attempts to eliminate forever this category of weapons ever since their most widespread use by both the Central and Allied Powers.

Although the history of chemical warfare nine decades ago is interesting, a legitimate question is the relevance of gas warfare today—especially for the United States. World War I marked the first use of gas or chemical warfare in modern times on a wide and unprecedented scale. The Germans conducted the first large-scale attack using chemical weapons at Ypres, Belgium, in April 1915. The British followed suit in September of the same year. An estimated 89,000 soldiers (from all nations) died from gas exposure, and another 1.24 million were afflicted as nonfatal casualties.¹ This represents only about 2 to 4 percent of the total war casualties among a staggering figure of over 9.7 million military who died during the conflict.²

It could have been worse. Rapid advances in personal protection and chemical agent detection in the last two years of the war all lessened chemical weapons’ potential impact. Tactical challenges employing gas, particularly the weather, also reduced chemical weapons’ impact. Even using gas against your opponent necessitated extensive precautions due to the instances the gas drifted back on your own forces.³

Although the losses and casualties caused by chemical weapons were horrific, it is not widely known that it would have been far worse without expedient measures undertaken during the war. Chemical warfare beleaguered all units—large and small, friendly and enemy. A telling example is the case of a company of engineers with the U.S. 1st Infantry Division. Using an American veteran’s personal diary of his exploits with E Company, 1st Engineers (today the 1st Engineer Battalion, 1st Infantry Division), and using a book long out of print (*A History of the First U.S. Engineers, 1st U.S. Division*), one can trace many of the tumultuous events of the years 1917–1919 for a small but typical group of Americans.⁴ These references suggest that, despite the mutual fear of chemical attacks, “gas” was used frequently, albeit with difficulty, by both sides in an attempt to break the stalemate of trench warfare.⁵ There are numerous excellent books on this topic, but see in particular *The Poisonous*

Cloud: Chemical Warfare in the First World War by Ludwig Fritz Haber and *Gas and Flame in Modern Warfare* by Major S.J.M. Auld.^{6, 7}

The experience of the 1st Engineers is representative of many American units during World War I. The 1st Engineers suffered 817 total casualties and 88 killed in action. A third of these included 294 casualties as a result of the historical idiom “Gassed in Action” or “G.I.A.”⁸ The nonfatal casualties, those exposed to gas, were certainly debilitated and evacuated to field hospitals, primarily in the rear, to recuperate if at all possible.^{9, 10} Chemical warfare certainly had an impact on operations, but advances in mask design and training by 1918 provided a modicum of protection for these Soldiers as evidenced in even personal accounts.¹¹



St. Mihiel American Cemetery and Memorial in France containing the graves of 4,153 American military dead from World War I. (Photo: Mr. Claude Ludi)



An excerpt from a veteran's diary concerning training prior to battle essentially sums the incessant preparation by the Americans to protect against gas attack:

One of the things drummed into our minds by our French and British instructors was gas. In fact, so much so that we all had the impression—one whiff, and you were dead. This mental attitude has become most annoying. One of the duties of the sentries is to give the alarm in case of gas attack. This is done by winding overgrown Klaxon horns and banging on empty brass shell cases. Some of these dugouts and bombproofs are a trifle high in odor on account of their former occupants, so added to our other discomforts is the questionable pleasure of being awakened several times every night by some green sentry smelling somebody's feet and turning in a gas alarm. We then sit up for several hours with our masks on until somebody gets courage enough to take a sniff, our noses half pinched off by the nose clips of our masks. This had become such a nightly occurrence [that] we finally reached the stage where we woke up, took a sniff, and went back to sleep again.

—Private Russell M. Lee¹²

The 1st Engineers saw extensive service from Cantigny, France (where the American Allied Expeditionary Force was tested in combat for the first time in May 1918), all the way to Germany (where the American Army served as an army of occupation immediately after the war). Today, any battlefield tour will reveal numerous monuments and plaques honoring American sacrifice. In September 1918, the 1st Engineers, as part of the overall American offensive, broke the German salient at St. Mihiel, which they had held for four years of bitter trench



Sketch from the diary of Private Russell M. Lee. The handwriting on the back states, "Return of a Patrol October 28, 1918. Note: Man in lower corner had just been hit by a stray rifle shot."

warfare—including gas attacks by both sides. The salient had threatened the entire region between Verdun and Nancy, France, and interrupted the main railroad line from Paris to the east. Then, the entire weight of American forces was shifted to the Meuse-Argonne offensive, which began on 26 September and ended on 11 November 1918 when the Armistice was signed. Nearly 1,500 Americans from all units were casualties as a result of chemical warfare during that last offensive alone.¹³ Testament is found nearby. The largest American military cemetery in Europe is not from World War II or found in Normandy, as popular culture might lead us to believe, but at the Meuse-Argonne American Cemetery and Memorial in France, where 14,246 of our World War I military dead are buried.

Despite the passage of time, it is important to draw lessons from this relatively small American unit, its casualties, and current American policy with regard to chemical weapons. Developments in protection against chemical weapons today include the Joint Service Lightweight Integrated Suit Technology, designed to protect up to 24 hours against all known chemical (and biological) agents. The Department of Defense, specifically the Defense Threat Reduction Agency, is conducting research and development of very advanced means to detect threats and protect our forces.¹⁴ In the area of training, even though the experiences highlighted by the 1st Engineers would mock over-preparation, Soldiers knew how to don their gear and react to an alarm (even if false). This training prepared them to conduct military operations despite the fear of gas attack. Today, our U.S. Army Chemical, Biological, Radiological, and Nuclear (CBRN) School is symbolic of the concerted effort to counter the entire range of CBRN threats and builds upon lessons painfully learned over nine decades ago.

Protection and training alone do not fully address the danger of chemical weapons. Despite rigorous 1st Engineer training, for example, one-third of their casualties were attributed to chemical warfare. Even with the state-of-the-art protective gear available in 1918, implementing protective measures, and conducting regular training, chemical warfare still had a dramatic impact on the overall effectiveness and capability of this unit to carry out sustained operations.¹⁵ Dealing with these casualties and sending replacements created huge medical and logistical burdens.¹⁶ A defining lesson from the American experience in World War I is that, ultimately, the United States would change its doctrine and the policy toward the production and use of chemical weapons.

U.S. policy evolved over time from a chemical weapon "no first use" policy as a signatory of the 1925 Geneva Protocol, to its ultimate complete renunciation, and then agreement for their destruction.^{17, 18} Even with the end of World War I and the perceived public outcry against such weapons, countries around the globe built huge stockpiles of chemical weapons. The temptation, regardless of justification to use chemical weapons, has been wrestled with by our senior military and political figures ever since. Even the well-admired General G.C. Marshall considered resorting to chemical warfare against



the Japanese during the last stages of World War II.^{19, 20} U.S. chemical weapons were even stockpiled in large quantities in Europe until 1990. The deadly legacy of chemical weapons still haunts us today. Only by the elimination of this class of weapons has the world become safer from the potential state use of these weapons.

Great progress is evidenced by the Convention on the Prohibition of the Development, Production, Stockpiling, and Use of Chemical Weapons and on Their Destruction (commonly known as the Chemical Weapons Convention [CWC]) toward the elimination of this threat. A total of 188 nation states are signatories of the CWC. Seven nation states (an unknown state party [believed to be South Korea], Albania, India, Iraq, Libya, the Russian Federation, and the United States of America) have all pledged the destruction of some declared 71,194 metric tons of chemical weapons, including some 8.67 million munition items. The largest declared stockpiles are found in Russia and the United States and appear to be on track for verifiable destruction by 2017. World War I's deadly legacy took some eight decades before being truly confronted by almost all nations. There are a handful of nations who are not yet signatories to the CWC.²¹ And there remains today a genuine concern about nonstate actor or terrorist use of chemical weapons.²² The lessons of 1918 force us to address the chemical weapon threat with a dual approach—protection and elimination!

The young private's World War I recollections and the battlefield experiences of his engineer unit are emblematic of the pragmatic and determined effort to protect our Soldiers. It also remains a tangible goal for the United States to eliminate the threat of such chemical weapons—ironically, almost 100 years hence our first experiences with them. Nation states are almost universally committed to the renunciation of these weapons and of their destruction, but there will always be a need for protection against potential future use. We cannot be as unprepared as those first soldiers in 1915 when facing this threat, and nations must continue to strive to eliminate the existing threat built up ever since.

Endnotes:

¹Michael Duffy, *Weapons of War—Poison Gas*, 22 August 2009, <<http://firstworldwar.com/weaponry/gas.htm>>, accessed on 15 April 2010.

²Ibid. The British were the first to take retaliatory action using chlorine gas on 24 September 1915.

³Major S.J.M. Auld, *Gas and Flame in Modern Warfare*, New York, BiblioLife reprint of 1918 original, 2009, pp. 21–22.

⁴*A History of the 1st U.S. Engineers, 1st U.S. Division*, Coblenz, Germany, 1919.

⁵Tim Cook, *No Place to Run: The Canadian Corps and Gas Warfare in the First World War*, University of British Columbia Press, Ottawa, 2000, pp. 3–6.

⁶Ludwig Fritz Haber, *The Poisonous Cloud: Chemical Warfare in the First World War*, Oxford University Press, Oxford, 1986.

⁷Auld, 2009.

⁸*History of the 1st U.S. Engineers, 1st U.S. Division*, 1919, pp. 162–172. A listing of all 1st Engineers who served in World War I—especially if wounded, killed, or gassed—and their hometowns is found here.

⁹*Outlines of Histories of Divisions, U.S. Army, 1917–1919*, Historical Section, U.S. Army War College, Carlisle Barracks, Carlisle, Pennsylvania.

¹⁰*Report of Medical Department Activities, 1st Division*, on file at Historical Division, Surgeon General's Office, undated, but covers the period 1917–1919.

¹¹Auld, 2009, pp. 26–42.

¹²Private Russell M. Lee, *Unofficial Recollections*, E Company, 1st Engineers, a personal diary of experiences during World War I, 1917–1919, unpublished.

¹³*Primary Documents—John J Pershing's Official Report of November 1919 on the Battle of St. Mihiel*, Government Printing Office, Washington, D.C., 1919, pp. 38–44.

¹⁴Defense Threat Reduction Agency and U.S. STRATCOM Center for Combating WMD Web site, <<http://www.DTRA.mil>>, accessed on 20 April 2010.

¹⁵Charles E. Heller, *Chemical Warfare in World War I: The American Experience, 1917–1918*, Combat Studies Institute, U.S. Army Command and General Staff College, Fort Leavenworth, Kansas, September 1984, Chapter 5.

¹⁶*Outlines of Histories of Divisions, U. S. Army*, 1917–1919.

¹⁷John Ellis van Courtland Moon, “United States Chemical Warfare Policy in World War II: A Captive of Coalition Policy?” *The Journal of Military History*, Vol. 60, No. 3, July 1996, pp. 495–511.

¹⁸Public Law 102-138, *Chemical and Biological Weapons Control and Warfare Elimination Act of 1991*.

¹⁹G.C. Marshall, *Marshall Memorandum for Admiral Leahy*, 21 June 1945, G.C. Marshall Papers, Pentagon.

²⁰*Memorandum for General Hull*, #5-169, 3 July 1945, <<http://www.marshallfoundation.org>>, accessed on 20 April 2010.

²¹*Draft Report of the OPCW on the Implementation of the Convention on the Prohibition of the Development, Production, Stockpiling, and Use of Chemical Weapons and on Their Destruction in 2008, Fourteenth Session*, Organisation for the Prohibition of Chemical Weapons, The Hague, the Netherlands, 16 July 2009.

²²Senator Susan M. Collins, Opening Statement, *World at Risk: The Report of the Commission on the Prevention of WMD Proliferation and Terrorism*, Washington, D.C., 11 December 2008, pp. 1–6.

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